



CFA-Molecular Breeding  
NGGIBCI-2014

## 4<sup>th</sup> International Workshop on

# Next Generation Genomics and Integrated Breeding for Crop Improvement

February 19-21, 2014

ICRISAT, Patancheru, India  
(Ralph W Cummings Auditorium)



## Technical Programme

### Wednesday, February 19, 2014

08:00 – 08:30	Registration	
<b>08:30 – 11:00</b>	<b>Inaugural Session</b>	
08.30 – 08.:50	Welcome and remarks	<b>Rajeev Varshney</b> <i>Chair, 4<sup>th</sup> NGGIBCI, ICRISAT India</i>
08:50 – 09:00	Remarks about Integrated Breeding	<b>P K Gupta</b> <i>Chair, Accelerated Crop Improvement Programme, Department of Biotechnology India</i>
09:00 – 09:10	Remarks about Modern Genomics	<b>Swapan K Datta</b> <i>Deputy Director General (Crop Science), ICAR India</i>
09:10 – 09:25	Inaugural Address	<b>William D Dar</b> <i>Director General, ICRISAT India</i>
09:25 – 09:30	Introduction of speaker	<b>Rajeev Varshney</b> <i>ICRISAT India</i>
09:30 – 10:15	Inaugural lecture: <b>Digital revolution of agriculture – omics- based agricultural development</b>	<b>Wang Jun</b> <i>Executive Director BGI-Shenzhen China</i>
10:15 – 11:00	Group Photo/High Tea	

<b>11:00 – 12:30</b>	<b>Session I: Next Generation Genomics</b> <b>Co-Chairs: KK Narayanan &amp; Manoj Prasad</b>	
11:00 – 11:30	Validating, improving and applying genome assemblies using NGS	<b>Dave Edwards</b> <i>University of Queensland</i> Australia
11:30 – 12:00	Applications of genotyping-by-sequencing for wheat breeding and genetics	<b>Jesse Poland</b> <i>Kansas State University</i> USA
12:00 – 12:30	Integration of DArT and DArTseq genome profiling platforms with KDDart IT support for breeding and pre-breeding applications	<b>Andrzej Kilian</b> <i>Diversity Arrays Technology Pty Ltd (DArT)</i> Australia
12:30 – 13:30	<i>Lunch</i>	
<b>13:30 – 15:30</b>	<b>Session II: Novel Mapping Approaches and QTLs</b> <b>Co-Chairs: Noel Ellis &amp; Hari Upadhyaya</b>	
13:30 – 14:00	High density genotyping and phenotyping data: challenges of leveraging novel technologies for the valorization of PGRs	<b>Andreas Graner</b> <i>IPK-Gatersleben</i> Germany
14:00 – 14:30	Dissection of complex traits in wheat using MAGIC	<b>Colin Cavanagh</b> <i>CSIRO</i> Australia
14:30 – 15:00	Functional mechanisms of drought tolerance identified in subtropical maize ( <i>Zea mays</i> L.) using genome-wide association mapping and transcriptome approaches	<b>T Nepolean</b> <i>IARI</i> India
15:00 – 15:30	Genome sequence and QTL identification for major agronomic traits of mungbean ( <i>Vigna radiata</i> )	<b>Suk-Ha Lee</b> <i>Seoul National University</i> Korea
15:30 – 16:00	<i>Tea &amp; Coffee</i>	
<b>16:00 - 17:30</b>	<b>Session III: Sequence to Phenotype</b> <b>Co-Chairs: Kadambot HM Siddique &amp; Philippe Ellul</b>	
16:00 – 16:30	Whole genome re-sequencing reveals agronomically important loci in rice using MutMap and QTL-seq	<b>Ryohei Terauchi</b> <i>Iwate Biotechnology Research Center</i> Japan
16:30 – 17:00	Large-scale application of GbS in the Seeds of Discovery (Seed) project: 'Rightsizing' of methods and initial results	<b>Peter Wenzl</b> <i>CIMMYT</i> Mexico
17:00 – 17:30	3000 rice genomes – Update and plans	<b>Kenneth McNally</b> <i>IRRI</i> The Philippines
18:30 onwards	<i>Welcome Dinner @ Mary Cummings Park, ICRISAT</i>	

## Thursday, February 20, 2014

<b>08:30 – 10:00</b>	<b>Session IV: Genomics-Assisted Breeding</b> <b>Co-Chairs: Stefania Grando &amp; Ramesh Aggarwal</b>	
08:30 – 09:00	Possibilities and limitations of plant genome sequences for plant sciences	<b>Richard Visser</b> <i>Wageningen University</i> The Netherlands
09:00 – 09:30	Genomics based marker development and breeding for resistance in barley	<b>Frank Ordon</b> <i>JKI-Institute for Resistance Research and Stress Tolerance</i> Germany
09:30 – 10:00	Whole genome strategies for marker-assisted plant breeding	<b>Yunbi Xu</b> <i>CIMMYT-China</i> China
10:00 – 10:30	<i>Tea &amp; Coffee</i>	
<b>10:30 – 12:30</b>	<b>Session V: Integrated Breeding I</b> <b>Co-Chairs: Gengyun Zhang &amp; JS Sandhu</b>	
10:30 – 11:00	The opportunity to improve wheat performance in low-yielding environment	<b>Peter Langridge</b> <i>Australian Centre for Plant Functional Genomics(ACPGF)</i> Australia
11:00 – 11:30	Integrated breeding in dryland cereals at ICRISAT: present status and future opportunities	<b>Stefania Grando</b> <i>ICRISAT</i> India
11:30 – 12:00	Identification of QTL controlling grain protein content, zinc and iron content in rice	<b>Shailaja Hittalmani</b> <i>UAS - Bangalore</i> India
12:00 – 12:30	Development and use of mutants induced by EMS in the background of upland variety Nagina22 for rice functional genomics	<b>T Mohapatra</b> <i>CRR I</i> India
12:30 – 13:30	<i>Lunch</i>	
<b>13:30 – 15:30</b>	<b>Session VI: Integrated Breeding</b> <b>Co-Chairs: RP Sharma &amp; Shoba Sivasankar</b>	
13:30 – 14:00	Hybrid breeding in wheat	<b>Jochen Reif</b> <i>IPK-Gatersleben</i> Germany
14:00 – 14:30	Integrated breeding in grain legumes: some examples in chickpea, pigeonpea and groundnut	<b>Rajeev Varshney</b> <i>ICRISAT</i> India
14:30 – 15:00	The ten years (2004 to 2014): progress in peanut genetics and genomics	<b>Baozhu Guo</b> <i>USDA-ARS/University of Georgia</i> USA
15:00 – 15:30	Genomics based tools for omega-3 fatty acid rich oil seed crop, Linseed	<b>Vidya Gupta</b> <i>NCL-Pune</i> India

15:30 – 16:00	<i>Tea &amp; Coffee</i>	
<b>16.00-17.30</b>	<b>Session VII: Breeding for Target Environments</b> <b>Co-Chairs: HS Balyan &amp; Narendra Tuteja</b>	
16:00 – 16:30	Genomics approaches to enhance durum wheat production	<b>Roberto Tuberosa</b> <i>University of Bologna</i> Italy
16:30 – 17:00	Stress resilient and nutritionally enriched maize for the tropics - product development to seed delivery	<b>BM Prasanna</b> <i>CIMMYT-Kenya</i> Kenya
17:00 – 17:30	Adaptation to high soil in wheat Determined by allelic variation and gene duplication	<b>Tim Sutton</b> <i>Australian Centre for Plant Functional Genomics (ACPGF)</i> Australia
18:30 onwards	<i>Gala Dinner @ Anniversary Lawns (205 Bldg), ICRISAT</i>	

## **Friday, February 21, 2014**

<b>08:30 – 10:00</b>	<b>Session VIII: Genomic Selection</b> <b>Co-Chairs: Jeff Ehlers &amp; Pooran Gaur</b>	
08:30 – 09:00	What do we need to do to bring genomics tools into routine use in cultivar development?	<b>Gary Atlin</b> <i>BMGF</i> USA
09:00 – 09:30	Genomic prediction incorporating genotype x environment with pedigree, markers and environmental covariate	<b>Jose Crossa</b> <i>CIMMYT</i> Mexico
09:30 – 10:00	LPmerge: an R package for merging genetic maps by linear programming	<b>Jeffrey Endelman</b> <i>University of Wisconsin</i> USA
10:00 – 10:30	<i>Tea &amp; Coffee</i>	
<b>10:30 – 12:30</b>	<b>Session IX: Decision Support Platforms for Breeding</b> <b>Co-Chairs: Graham McLaren &amp; Eric Y Danquah</b>	
10:30 – 11:00	Modelling GxE interaction prior to genomic prediction	<b>Fred van Eeuwijk</b> <i>Wageningen University</i> The Netherlands
11:00 – 11:30	Next generation genetic improvement	<b>John Hickey</b> <i>University of Edinburgh</i> UK
11:30 – 12:00	The effect of genetic relationships and other factors on genomic prediction accuracy in public plant breeding programs	<b>Aaron Lorenz</b> <i>University of Nebraska</i> USA
12:00 – 12:30	An open platform approach for management and analysis of next-generation genotyping data by breeders and geneticists	<b>Ramil Mauleon</b> <i>IRRI</i> The Philippines
12:30 – 13:30	<i>Lunch</i>	

<b>13:30 – 15:00</b>	<b>Session X: New Horizons for Crop Improvement</b> <b>Co-Chairs: Jacqueline Batley &amp; MV Rajam</b>	
13:30 – 14:00	Taking a walk on the wild side: prospecting for traits in the wild progenitor species of cultivated chickpea	<b>Doug Cook</b> <i>UC-Davis</i> USA
14:00 – 14:30	Functional genomics in common bean and soybean	<b>Scott Jackson</b> <i>University of Georgia</i> USA
14:30 – 15:00	Drought grain yield QTLs in rice	<b>Arvind Kumar</b> <i>IRRI-India</i> India
15:00 – 15:30	<i>Tea &amp; Coffee</i>	
<b>15.30 -17.00</b>	<b>Concluding Session</b>	
15:30 – 15:35	Introduction of speaker	<b>Rajeev Varshney</b> <i>ICRISAT</i> India
15:35 – 16:20	Concluding lecture: <b>Adoption of modern breeding tools in developing countries: Challenges and opportunities</b>	<b>Jean-Marcel Ribaut</b> <i>Director, Generation Challenge Programme</i> Mexico
16:20 – 16:35	Future perspectives on breeding	<b>CLL Gowda</b> <i>ICRISAT</i> India
16:35 – 16:50	Future perspectives on genomics	<b>RS Paroda</b> <i>APAARI</i> Thailand
16:50 – 17:00	Vote of thanks	<b>Rajeev Varshney</b> <i>ICRISAT</i> India
18:30 onwards	<i>Dinner @ IMOD Plaza, ICRISAT</i>	